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CLAIMS

1. A method of operating an internal combustion engine (10), wherein:

at least one outlet valve (36) is opened with the aid of an actuator upon termination of a working stroke, thereby releasing exhaust gas from at least one combustion chamber (14);

a pressure value is determined which is indicative of the gas pressure in the combustion chamber (14) during the working stroke;

characterized in that

an actual value (hact) of the lift of the outlet valve (36) is determined together with actual operating parameters (tm, Toil, Poil, nmot, wao, pabg) of the internal combustion engine that affect the valve lift (hact); and

an actual value (paoact) of the gas pressure in the combustion chamber (14) at the time of an opening of the outlet valve (36) is determined at least approximately based on the determined actual valve lift (hact) of the outlet valve (36) and the determined actual operating parameters (tm, Toil, Poil, nmot, wao, pabg) of the internal combustion engine (10).

2. The method according to claim 1, wherein on the basis of a set of operating parameters (BG) of the internal combustion engine (10) which are effective for a future working stroke, an estimated gas pressure (paopred) in the combustion

chamber (14) is determined for this future working stroke, wherein after termination of this working stroke, the estimated gas pressure (paopred) determined for this working stroke is compared with the actual gas pressure (paoact) determined for the same working stroke, and wherein, depending on a result of the comparison, a method (func paopred) is adapted by means of which the estimated gas pressure (paopred) is determined.

3. The method according to claim 1, wherein on the basis of a set of operating parameters (BG) of the internal combustion engine (10) for a future working stroke, an estimated gas pressure (paopred) in the combustion chamber (14) is determined for this future working stroke, wherein, after termination of this working stroke, the estimated gas pressure (paopred) determined for this working stroke is compared with the actual gas pressure (paoact) determined for the same working stroke, and wherein, depending on a result of the comparison, a piece of information (INF) is issued.

4. The method according to claim 1, wherein the actual gas pressure (paoact) is determined by means of the following formula:

$$paoact = -\frac{C1}{2*C2} + \sqrt{\left(\frac{C1}{2*C2}\right)^2 + \frac{hact - C0}{C2}}$$

wherein C0, C1, and C2 are coefficients, which depend at least in part on the operating

parameters (tm, Toil, Poil, nmot, wao, pabg) of the internal combustion engine (10) affecting the valve lift (hact) of the outlet valve (36), and wherein hact is the determined actual value of the valve lift.

5. The method according to claim 1, wherein the actual gas pressure (paoact) is determined by means of the following formula:

$$paoact = C1*(hact-C0) + C2 * (hact-C0)^2$$

wherein C0, C1, and C2 are coefficients that depend at least in part on the operating parameters (tm, Toil, Poil, nmot, wao, pabg) of the internal combustion engine (10) affecting the valve lift (hact) of the outlet valve (36), and wherein hact is the determined actual value of the valve lift.

6. The method according to claim 4, wherein at least one of the coefficients C0, C1, and C2 is determined by means of a polynomial (func_C0, func_C1, func_C2) with linear and quadratic terms which depend on operating parameters (tm, Toil, Poil, nmot, wao, pabg) of the internal combustion engine (10) affecting the valve lift (hact).

7. The method according to claim 4, wherein at least one of the coefficients C0, C1, and C2 is determined by means of a characteristic map, which depends on operating parameters of the internal combustion engine (10)

affecting the valve lift (hact).

8. The method according to claim 1, wherein the operating parameters used in the computation of an actual value (paoact) of the gas pressure in the combustion chamber (14) at the time of an opening of the outlet valve (36) include an actuation time (tm) of a control device (46) of the outlet valve which is applied for the desired valve lift, a rotational speed (nmot) of a crank shaft (20), an angular position (wao) of the crank shaft (20) at the time of the opening of the outlet valve (36), a mean pressure (pabg) of the exhaust gas downstream of the outlet valve (36) at the time of the opening of the outlet valve (36), a temperature (Toil) of a hydraulic fluid with which the outlet valve (36) is actuated, a pressure (Poil) of the hydraulic fluid, and/or a mass of a working gas enclosed in the combustion chamber.

9. The method according to claim1, wherein the valve lift (hact) of the outlet valve (36) is determined by means of a linear displacement or position sensor (40).

10. The method according to claim 1, wherein the valve lift of the outlet valve is determined from the time required for a corresponding closing process of the valve.

11. A computer program, which is programmed for performing

the method according to claim 1.

12. An electric storage medium (40) for an electronic control unit (52) of an internal combustion engine (10), wherein a computer program according to claim 11 is stored.

13. An electronic control unit (52) for operating an internal combustion engine (10), wherein a method of operation according to claim 1 is implemented, for example, as a computer program.